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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,924	02/23/2004	Hirotsuna Miura	118763	7531

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EXAMINER

HEINRICH, SAMUEL M

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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01/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/782,924

Applicant(s)

MIURA ET AL.

Examiner

Samuel M. Heinrich

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 60-74 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 60-74 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 60-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of USPN 6,531,191 to Notenboom in view of EP0930641A2 in view of USPN 5,316,80 to Noakes et al.

AAPA describes (Specification Description of the Related Art, pp. 1 and 2, Figures 25 and 26) well known droplet deposition and laser treatment. AAPA describes (Description of the Related Art) droplets which are naturally dried and then heated and describes drying of droplets with an IR lamp.

Notenboom describes (column 3, lines 40-57) laser evaporation means for obtaining a thin layer or particles wherein the liquid is evaporated, and describes subsequent laser sintering of the particles "by means of a more powerful laser".

Notenboom describe (column 3, lines 40-57) laser evaporation and subsequent laser sintering with a more powerful laser. Notenboom shows (Figures 1f and 1g) a first layer of adjacent coating spots 7 and 9 and a second layer coating spot 10 which overlaps both spots 7 and 9.

EP0930641A2 describes ([0118]-[0120] and Figure 13) deposition of droplets and subsequent deposition of fluid "on the areas devoid of the previously deposited fluid". EP0930641A2 shows (e.g., Figure 13) first and second inkjet heads.

Noakes et al describe (column 17, lines 6-16) "deposit the ligaments/droplets in an interleaved fashion" wherein they are "interleaved and fill the gaps".

The instant claimed droplet spacing would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the non-contacting droplets provide a smaller conductive line.

Diffraction optical elements and reflectors are well known beam focus and beam direction means and the use thereof would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art for directing a beam to a substrate.

The instant claimed fourth and fifth droplet application would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art as being duplicate steps in a further build-up process.

Note, it would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art that following heating, drying, or laser evaporation, any remaining or trapped solvent would be gasified in the sintering steps described in AAPA or Notenboom.

Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of USPN 6,531,191 to Notenboom in view of EP0930641A2 in view of USPN 5,316,80 to Noakes et al as applied to claim 60 above, and further in view of USPN 3,710,072 to Shrader et al.

Shrader et al describe (column 6, lines 63-67) the use of a diffuse beam and the use of a narrow beam, and the use of a wide beam for evaporation in a method of manufacturing a wiring substrate would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the wide beam provides efficient evaporation of certain materials.

Response to Arguments

Applicant's arguments filed October 30, 2007 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Donges shows (Front Page) droplets deposited in interleaved fashion. Sekiya show (e.g., Figures 20 and 21) deposits of overlapped droplets. Renn describes deposition of solid particles and liquid precursors and describe sintering with laser.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Johnson can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Samuel M Heinrich
Primary Examiner